REMARKS

Claims 1-8 are pending in this application. By this Amendment, claim 1 is amended. Support for the amendments can be found in the specification at, for example, page 5, lines 1-2. No new matter is added. Reconsideration of the application based upon the above amendments and the following remarks is respectfully requested.

The courtesies extended to Applicant's representative by Examiner Quinn and Supervisory Patent Examiner Malsawma at the interview held July 9, are appreciated. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below and constitute Applicant's record of the interview.

I. Rejection Under 35 U.S.C. § 102(b)

The Office Action rejects claim 1 and 4 under 35 U.S.C. §102(b) as being anticipated by Nishimura et al. ('Nishimura", US Patent 5,523,588). However, Nishimura does not disclose every limitation of independent claim 1. Thus, the rejection is respectfully traversed.

Independent claim 1 specifies, *inter alia*, a method for making a field effect transistor comprising a source and a drain connected by a channel controlled by a gate electrode separated from the channel by a gate insulator, the channel being formed in a diamond-like carbon layer. Claim 1 also specifies, *inter alia*, that the method successively comprises the deposition of said diamond-like carbon layer on a substrate; the deposition of an insulating gate layer on the diamond-like carbon layer; the deposition, on the insulating gate layer, of at least one conducting layer and etching of the latter so as to form the gate electrode; the deposition of an insulating material on flanks of the gate electrode to form a lateral insulator; the etching of the gate insulating layer, the etching of the diamond-like carbon layer so as to delineate the channel, in said diamond-like carbon layer; and the deposition, on each side of the channel, of a semi-conducting material designed to form the source and of a semi-conducting material designed to form the drain.

As discussed at the interview, Nishimura discloses that the film thickness of the i-layer (54), which corresponds to Applicant's gate insulating layer, is reduced by etching it with plasma using the gate electrode film, the protective film and the side walls as masks (Nishimura, col. 5, lines 38-41). In Nishimura, the film thickness of the i-layer (54) is reduced as much as possible so that fewer defects are generated in the p-layer (53) when the ion implanted diamond surface region is subsequently formed by implanting boron ion seed through the i-layer and into the p-layer by ion implantation (Nishimura, col. 5, lines 38-45 and 53-57; col. 6, lines 24-25 and 48-51). In contrast, the present claims recite etching the diamond-like carbon layer so as to delineate the channel, in said diamond-like carbon layer. As agreed to at the interview, the present claims specify that the diamond-like carbon layer is etched, whereas in Nishimura only the i-layer (gate-insulating layer) is etched to reduce the thickness of the i-layer prior to ion implantation. Nowhere does Nishimura disclose etching the p-layer to form a channel to connect the source to the drain. Nishimura thus fails disclose etching the diamond-like carbon layer so as to delineate the channel, in said diamond-like carbon layer, as claimed.

Nishimura further discloses that the boron ionic implantation is performed using the gate electrode and the side walls as a mask to form the ion implanted diamond surface region (Nishimura, col. 6, lines 4-8). In Nishimura, boron ions are implanted through the i-layer and into the p-layer to create a channel in the p-layer that will connect the source and the drain, which are mounted on the ion implanted diamond surface regions (Nishimura, Figure 6C). In contrast, the present claims specify that the channel, which connects the source to the drain, is formed by etching the diamond-like carbon layer rather than by implanting boron ions through the i-layer (gate insulating layer) and into the p-layer (boron doped mono-crystalline p-type semi-conducting diamond film) to connect the source to the drain. Nishimura thus

fails to disclose etching the diamond-like carbon layer so as to delineate the channel, in said diamond-like carbon layer, as claimed.

After forming the ion implanted diamond surface regions, the source electrode and the drain electrode are formed such that all or at least part of the source and drain electrodes cover the ion implanted diamond surface regions (Nishimura, col 6, lines 47-51). However, nowhere does Nishimura disclose the deposition, on each side of the channel, of a semi-conducting material designed to form the source and of a semi-conducting material designed to form the drain, as claimed. Nishimura thus fails to anticipate Applicant's independent claim 1.

Claim 4 depends from claim 1. Because Nishimura fails to teach the features recited in independent claim 1, dependent claim 4 is patentable for at least the reasons that claim 1 is patentable, as well as for the additional features it recites.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

II. Rejections Under 35 U.S.C. § 103(a)

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishimura in view of Ishikura et al. ("Ishikura", US 6,025,211), and Nasser-Faili et al. ("Nasser-Faili", US 6,013,191). Claim 3 is rejected as being unpatentable over Nishimura in view of Ishikura, Nasser-Faili and Clevenger et al. ("Clevenger", US 6,573,565). Claims 5-8 are rejected as being unpatentable over Nishimura in view of Dennard et al. ("Dennard", US 4,090,289). Because the rejections are related, they are addressed together. Applicants respectfully traverse the rejections.

For all the reasons discussed above, Nishimura fails to teach, and likewise fails to suggest, etching the diamond-like carbon layer so as to delineate the channel, in said diamond-like carbon layer, as claimed. As also discussed, Nishimura fails to teach or suggest

the deposition, on each side of the channel, of a semi-conducting material designed to form the source and of a semi-conducting material designed to form the drain, as claimed. Thus, Nishimura does not render obvious independent claim 1.

Ishikura, cited only against dependent claims 2-3, does not teach or suggest a method for making a field effect transistor comprising a source and a drain connected by a channel controlled by a gate electrode separated from the channel by a gate insulator, the channel being formed in a diamond-like carbon layer, as claimed. Therefore, Ishikura does not overcome the deficiencies of Nishimura, as discussed above.

Nasser-Faili, cited only against dependent claims 2-3, does not teach or suggest a method for making a field effect transistor comprising a source and a drain connected by a channel controlled by a gate electrode separated from the channel by a gate insulator, the channel being formed in a diamond-like carbon layer, as claimed. Therefore, Nasser-Faili does not overcome the deficiencies of Nishimura and Ishikura, as discussed above.

Clevenger, cited only against dependent claim 3, does not teach or suggest a method for making a field effect transistor comprising a source and a drain connected by a channel controlled by a gate electrode separated from the channel by a gate insulator, the channel being formed in a diamond-like carbon layer, as claimed. Therefore, Clevenger does not overcome the deficiencies of Nishimura, Ishikura and Nasser-Faili, as discussed above.

Dennard, cited only against dependent claim 5-8, does not teach or suggest a method for making a field effect transistor comprising a source and a drain connected by a channel controlled by a gate electrode separated from the channel by a gate insulator, the channel being formed in a diamond-like carbon layer, as claimed. Therefore, Dennard does not overcome the deficiencies of Nishimura, as discussed above.

Claims 2-8 variously depend from independent claim 1. Because Nishimura, Ishikura, Nasser-Faili, Clevenger and Dennard fail to teach or suggest, alone or in combination, the

features recited in independent claim 1, dependent claims 2-8 are patentable for at least the reasons that claim 1 is patentable, as well as for the additional features they recite.

Accordingly, any combination of the cited references fails to teach or suggest a method for making a field effect transistor comprising a source and a drain connected by a channel controlled by a gate electrode separated from the channel by a gate insulator, the channel being formed in a diamond-like carbon layer, as claimed. The references thus would not have rendered obvious the claimed invention.

Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of this application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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